

satisfied if: the first current source circuit includes a transistor but does not include any resistors, the first current source circuit includes a resistor but does not include any transistors, or the first current source circuit includes a transistor and a resistorsr.

FIGURE 5 shows that current source 112 includes transistor M15 in one embodiment. Accordingly, FIGURE 5 shows an embodiment of “the first current source circuit comprises at least one of a transistor or a resistor”.

Claim Objections

Claim 3 was objected to as the “if” and “else” clause at lines 5-8 needing to be rewritten. Claim 17 was objected to as the “if” and “else” clause at lines 21-24 needing to be rewritten. Claims 3 and 17 have been amended to correct the informality related to the if-else clauses.

Claim 3 was also objected to as the recitation, “a control voltage” at line 5 missing essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. Applicant respectfully traverses the objection.

It is respectfully submitted that the objection is improper because nothing “essential” has been omitted from Claim 3. The section of the MPEP referring missing essential matter is MPEP 2172.01. MPEP 2172 states that “A rejection based on the failure to satisfy this requirement only where the applicant has stated, somewhere other than the application as filed, that the invention is something different from what is defined in the claims.” Applicant has not stated, in the application or elsewhere, that there are any **necessary** structural connections omitted in the claims.

In one embodiment, “the first switch circuit” recited in Claim 3 is a MOSFET which is either conducting or non-conducting (between the drain and source of the MOSFET) depending on the control voltage at the gate of the MOSFET. Such an embodiment of switch circuit 102 embodied as transistor M6 is illustrated in FIGURE 5 of Applicant’s specification. However, nothing the Applicant’s specification suggest or implies that it is critical that switch circuit 102 must be implanted as a MOSFET with the control voltage applied at the gate of the MOSFET. One skilled in the art would recognize that the switch circuit could be implemented in other ways, and that the exact point at which the control voltage connected to the switch circuit depends on which embodiment of the switch circuit is implemented. Further, one skilled in the art would recognize

that the control signal need not be applied directly to the gate of the MOSFET. For example, one or more intermediate devices could be employed in between the signal path of the control voltage and the gate of the MOSFET. Accordingly, the exact structural connection of the control voltage to the switch circuit that is illustrated in FIGURE 5 is not essential to the invention. The hierarchical nature of the figures suggest that FIGURE 5 is only one embodiment of the invention, and that embodiments other than the one illustrated in FIGURE 5 may be employed.

Because the exact structural connection of the control voltage illustrated in FIGURE 5 is not essential to the invention, the objection is respectfully submitted to be improper.

One of ordinary skill in the art would understand that, in one embodiment, the first switch circuit is a MOSFET, and that in this embodiment, the control voltage may be coupled to the gate of the MOSFET, or to a intermediary component in between the signal path of the control voltage and the gate of the MOSFET, and that the control voltage may be connected at a different point if the first switch circuit is implemented in a different manner. It is understood that Claim 3 covers any embodiment that meets the limitation of Claim 3 regardless of the exact point at which the control voltage is connected. Claim breadth is not indefiniteness, see MPEP 2713.04.

Claim 3 was also objected to as the recitation “a low threshold” being unclear as to which low threshold it is referring to. Applicant respectfully traverses the objection.

The “low threshold” is clearly defined in the claim. The low threshold is the threshold at which, if the control voltage is below the low threshold, the first port of the first current mirror circuit is isolated from the first current source.

Claim 20, line 2, was objected to as the recitation, “a voltage” missing essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. Applicant respectfully traverses the objection to Claim 20.

Applicant respectfully submits that the rejection is improper because Claim 20 is a “means plus function” claim within the meaning of 35 U.S.C. § 112, paragraph 6. The statute 35 U.S.C. § 112, paragraph 6 specifically provides, “An element in a claim for a combination may be expressed as a means or step for performing a specified function **without the recital of structure ... in support thereof**” (emphasis added). Accordingly, structural relationships of elements need not be provided in a “means plus function” clause. In fact, sufficient structural relationships **must not** be

provided in a means for clause. See MPEP 2181, “the phrase ‘means for’ or ‘step for’ **must not** be modified by sufficient structure, material or acts for achieving the specified function” (emphasis added).

Claim 20 was also objected to as the recitation “a first threshold” and “a second threshold” being unclear as to which threshold it is referring to.

The first and second thresholds are two separate values to which the voltage is compared. The thresholds could be described by an equation based on various device parameters, but this would not be appropriate for means plus function limitations. The recitation, “means for comparing a voltage to a first threshold” is sufficient. It is not appropriate in a means plus function limitation to recite the structure or the exact devices parameters of the structural elements that give rise to the exact value of the first threshold, which in any event may vary from embodiment to embodiment.

Claims 1, 3-9, 11, 13, and 14

Claim 1 as amended is respectfully submitted to be allowable at least because Hastings does not disclose, “a first current mirror circuit that is coupled between the first switch circuit and the first output node “ in conjunction with “a current source circuit coupled to the first output node”, as recited in Applicant’s Claim 1 as amended.

Claims 5-9, 11, 13, and 14 are respectfully submitted to be allowable at least because they depend from Claim 1.

Claim 3 as amended is respectfully submitted to be allowable at least because Hastings does not disclose, “the first decoder circuit further includes a first current source circuit coupled to the first switch circuit, the first current source circuit and the first current mirror circuit are separate circuit elements”, as recited in Applicant’s Claim 3 as amended.

Claim 4 is respectfully submitted to be allowable at least because it depends from Claim 3.

Claim Rejections under 35 U.S.C. § 102(b) (Claim 20)

Claims 1, 3, 7, 8, 11, and 20 were rejected under 35 USC § 102(b) as being anticipated by Hastings (US 5,457,411). The rejections to Claims 1, 3, 7, 8, and 11 are rendered moot. The rejection to Claim 20 is respectfully traversed.

Claim 20 is respectfully submitted to be allowable at least because Hastings does not disclose “means for providing a current in response to the first threshold comparison; and means for reflecting the current to provide another current”, as recited in Applicant’s Claim 20.

In FIG. 7 of Hastings, transistors 50, 53, and 57 form a current mirror, where transistor 50 is an input-side transistor of the current mirror, and transistor 53 and 57 are output-side transistors. The current mirror receives current I_N at the input of the current mirror (i.e. the drain of transistor M50) and reflects the current to the drain of transistor 53 to provide current I_4 at 6 μA and also reflects the current I_N to the drain of transistor M57 to provide a current of 2 μA . In Hastings, it is current I_N (provided by current source 52) that is reflected. Current I_N is not “provided in response to the first threshold comparison”.

For at least these reasons, it is respectfully submitted that Claim 20 is allowable.

Claim Rejections under 35 U.S.C. § 103(a) (Claim 16)

Claims 9, 13, 14, and 16 were rejected under 35 USC § 103 (a) as being anticipated by Hastings. The rejection to Claims 9, 13, and 14 are rendered moot. The rejection to Claim 16 is respectfully traversed. Claim 16 is respectfully submitted to be allowable at least because Hastings does not teach or suggest, “wherein the first decoder circuit further includes a non-linear filter circuit; the non-linear filter circuit includes a capacitor; and wherein the capacitor has a capacitance that is less than .5 picofarads”, in conjunction with the other elements of Claim 16.

The Office Action states that, “it is well known in the art that a filter circuit with a capacitor and/or resistor eliminates or reduces signal noise. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have provided the circuit of Hastings with a filter circuit in order to eliminates or reduce signal noise. It is an obvious matter of

engineering modification.” The Office Action further states that, “it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a capacitance value of .5 picofarad, since it has been held that discovering an optimum value as a result effective variable involves only routine skill in the art.”

However, for the modification proposed by the Office Action, using a capacitance value of less than .5 picofarads would not be optimal. The Office Action does not explicitly say, but it appears that the Office Action is stating that the filter circuit of the proposed modification would be a low-pass filter inserted right after the input node VIN and before the gates of the transistor N1 and N2 in the circuit. In other words, the modification proposed by the Office Action would include a low-pass filter similar to low-pass filter 150 in FIGURE 5 of Applicant’s specification.

In the circuit illustrated in FIGURE 5 of Applicant’s specification, capacitors C1 and C2, in one embodiment, each have a capacitance that is significantly less than .5 pf, and capacitor C3 has a capacitance that is significantly greater than .5 pf. There is no suggestion in Hastings to use capacitors C1 or C2. It appears that the Office Action is arguing that it would be obvious for Hastings to include capacitor C3. Further, the Office Action argues that using less than .5 pf for capacitor C3 would be obvious since it is obvious to discover an optimum value. However, the optimum value of capacitor C3 would be greater than .5pf. There is no suggestion in Hastings to add capacitor C3 to Hastings and to use less than .5pf for capacitor C3.

For at least these reasons, it is respectfully submitted that Claim 16 is allowable.

New Claims (Claims 21-23)

Claim 21 is respectfully submitted to be allowable at least because Hastings does not disclose, “wherein the drain of the first transistor is coupled to first switch node, and wherein the gate of the first transistor is coupled to the drain of the first transistor”, as recited in Applicant’s Claim 21.

Claim 22 is respectfully submitted to be allowable at least because Hastings does not disclose, “a first current mirror circuit having at least: an input that is coupled to the first switch node, and an output that is coupled to the first output node”, as recited in Applicant’s Claim 22.

Claim 23 is respectfully submitted to be allowable at least because Hastings does not disclose, “a non-linear filter circuit that is coupled between the first switch node and the first output node”, as recited in Applicant’s Claim 23.

CONCLUSION

It is respectfully submitted that each of the presently pending claims (Claims 1-23) is in condition for allowance and notification to that effect is requested. The Examiner is invited to contact the Applicants' representative at the below-listed telephone number if it is believed that the prosecution of this application may be assisted thereby. Although only certain arguments regarding patentability are set forth herein, there may be other arguments and reasons why the claimed invention is patentable. Applicant reserves the right to raise these arguments in the future.

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Respectfully submitted,

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